REMARKS

Claims 1-4, 13, 15 and are pending. Claim 16 is cancelled herein without prejudice or disclaimer. Claims 1 and 15 are amended herein. Support for the amendments can be found at least at page 10, line 23 to page 11, line 4 of the specification. Claim 17 has been added herein. Support for the new claim is found at least at pages 8-12, Figs.1A-1C and 2 of the specification

Applicants' Response to the Claim Objections

Claims 1-4, 13 and 15-16 are objected to because of the informality as to the limitations of "a device pattern."

In response thereto, the limitations of "a device pattern" have been replaced with "a memory cell pattern" in claims 1 and 15. Applicants respectfully note that no limitation of "a device pattern" is recited in independent claim 13. Claim 16 has been cancelled herein.

Applicants' Response to the Claim Rejections under 35 U.S.C. §102(a or e)

Claims 1-4 and 13-16 are rejected under 35 U.S.C. 102(a) or (e) as being anticipated by *Ghinovker '833 (US 7,068,833 B1).*

In response thereto, applicants respectfully traverse on at least the basis that *Ghinovker '833* does not teach all the features of the present invention, pursuant to parent claim 1 and parent claim 13.

Specifically, *Ghinovker '833* at least does not teach the features of parent claim 1 directed to a plurality of alignment marks and a micronized pattern. Further in regard to parent claim 13,

Ghinovker '833 at least does not teach the features of alignment marks, micronized line-and-space pattern and broken line segments.

(a) Claim 1 and its dependents

In regard to claims 1-4, the Office maintains that coarsely segmented lines 76 and finely segmented elements 78 disclosed in *Ghinovker '833* correspond to a plurality of alignment marks and a micronized pattern in claim 1. Specifically, section "a." of ***Response to Arguments*** in the Office Action maintains that, in regard to the pattern forming margin, the plurality of the finely segmented elements (78), with roughly the same size and pitch of the actual integrated circuits, forms the micronized pattern; and therefore, the micronized pattern's pattern forming margin is larger than the device pattern margin.

However, the finely segmented elements 78 in *Ghinovker '833* does not correspond to the micronized pattern in claim 1 in terms of pattern forming margin.

The Office asserts that the micronized pattern formed by the plurality of the finely segmented elements 78 in *Ghinovker '833* has a larger pattern forming margin than the device pattern (memory cell pattern) for the reason that the finely segmented elements 78 have roughly the same size and pitch of the actual integrated circuits. According to this interpretation, a pattern formed by a plurality of pattern elements simply has a larger pattern forming margin than those the pattern elements have. However, this is not an appropriate interpretation of pattern forming margin and pattern size.

Namely, in *Ghinovker '833*, since the finely segmented elements 78 have not only the same size of the actual integrated circuits but also the same pitch of the actual integrated circuits,

the micronized pattern's pattern forming margin is still determined by the size and pitch of the finely segmented elements 78. The micronized pattern's pattern forming margin is still the same as the pattern forming margin of the finely segmented elements 78, even if the micronized pattern comprises the plurality of the finely segmented elements 78. That is, the micronized pattern's pattern forming margin is still the same as the pattern forming margin of the actual integrated circuits.

Therefore, the micronized pattern in claim 1, which has a pattern forming margin larger than a pattern forming margin which a memory cell pattern has, is completely different from the finely segmented elements 78 in *Ghinovker '833.*

Furthermore, *Ghinovker '833* is directed to overlay marks and overlay measurements. See Abstract. The overlay marks 70 comprises a set of two marks 72A/72D and 72B/72C, one of which is formed in a lower first layer and the other of which is formed on an upper second layer. The overlay marks are used for measuring an amount of the displacement between the first layer and the second layer. See col. 8, line 53 to col. 9, line 7.

Contrary, the present invention is directed to an alignment mark which is a target mark for exposing with respect to a first layer. The alignment mark is alone constituted in the first layer. See Figs. 1A-1C. An aligner, such as a stepper or others, obtains coordinates of the alignment marks by detecting the positions of the alignment marks with the alignment sensor, so as to perform a coordinate conversion converting the XY coordinate system of the wafer into the XY stage coordinate system of the aligner. For example, see pages 11-15 and Fig. 3 of the

specification. As such, the overlay marks of *Ghinovker '833* are not comparable to the alignment mark of the present invention.

As detailed above, *Ghinovker '833* does not teach each and every feature of parent claim 1 either expressly or inherently. Wherefore, favourable reconsideration is respectfully requested.

(b) Claim 13 and its dependents

The Office maintains that the lines 76 in *Ghinovker '833* correspond to the alignment marks in claim 13, and also the lines 76 correspond to the micronized line-and-space pattern in claim 13. Further, the rejection requires that the elements 78 in *Ghinovker '833* correspond to the segments which the broken line has in claim 13. As to the offset regarding the positions of the divisions argued in the previous response, referring to the section "b." of the ***Response to Arguments*** in the Office Action, the Examiner maintains that "such divisions" are inherently offset in at least the x direction in Fig. 2 of *Ghinovker '833.*

However, in interpreting claim 13, consideration should be given to the relationship in claim 13 between the direction in which the segments the broken line are arranged and the extending direction of the plurality of the lines which the alignment mark is divided into. In terms of this relationship, it is clear that *Ghinovker '833* does not anticipate the offset regarding the positions of the divisions in claim 13 as detailed below.

In Fig. 2 of *Ghinovker '833,* the lines 76, which the rejection regards as the lines of the micronized line-and-space pattern in claim 13, extend along the Y direction. The segments 78, which the rejection regards as the segments the broken line has in claim 13, are arranged in the X direction orthogonal to the Y direction.

Contrary, according to claim 13, each of the alignment marks is divided by the micronized line-and-space pattern into the plurality of the lines and the lines extend along the first direction. Each of the plural lines is divided into the broken line having the plurality of the segments and the segments are arranged in the first direction only. In claim 13, the extending direction of the lines of the micronized line-and-space pattern and the arrangement direction of the segments of the broken line are the same first direction. As such, it is clear that the present invention according to claim 13 is completely different from *Ghinovker '833* in terms of whether the segments are arranged in the same direction as the direction which the lines extend along or arranged in the direction orthogonal to the direction which the lines extend along. Hence, *Ghinovker '833* does not disclose the feature of claim 13 that the positions of the divisions between the plurality of segments of the lines are offset from those of the divisions between the plurality of segments of their adjacent lines.

Furthermore, applicants above remarks in regard to claim 1 and the difference between the overlay marks of *Ghinovker '833* and the alignment marks apply equally to the alignment marks of claim 13.

Therefore, claim 13 and its dependents cannot be anticipated by *Ghinovker '833*. Wherefore, favourable reconsideration is respectfully requested.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP

Michael J. Caridi
Attorney for Applicants
Registration No. 56,171
Telephone: (202) 822-1100
Facsimile: (202) 822-1111

MJC/ttw